

**THAT WHICH IS CLAIMED IS:**

1. A peptide comprising an Acetyl CoA carboxylase (ACCase) having a deleted biotin binding domain, having a deleted carboxy transferase domain, and having a functional biotin carboxylase domain.

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2. The peptide according to claim 1, wherein said ACCase is selected from the group consisting of mammal, insect, yeast, Ascomycota, Basidiomycota, and Oomycota ACCase.

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3. The peptide according to claim 1, wherein said carboxylase is *Ustilago maydis* carboxylase.

4. The peptide according to claim 1, wherein said carboxylase is *Phytophthora infestans* carboxylase.

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5. The peptide according to claim 1, wherein said carboxylase is *Magnaporthe grisea* carboxylase.

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6. The peptide according to claim 1, wherein said carboxylase is *Saccharomyces cerevisiae* carboxylase.

7. The peptide according to claim 1, wherein said carboxylase is human carboxylase.

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8. The peptide according to claim 1 having the amino acid sequence given in  
**SEQ ID NO: 2.**

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9. The peptide according to claim 1 selected from the group consisting of peptides having an amino acid sequence as given in **SEQ ID NO; 4, SEQ ID NO:6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, and SEQ ID NO: 17 through SEQ ID NO: 71.**

10. The peptide according to claim 1, wherein said peptide is a monomer.

11. The peptide according to claim 1, wherein said peptide binds to soraphen.
12. The peptide according to claim 1, wherein said peptide binds to soraphen  
5 and has a soraphen dissociation constant of from  $10^{-7}$  to  $10^{-14}$  M.
13. A composition comprising:
  - (a) an aqueous carrier solution; and
  - (b) the peptide of claim 1 solubilized in said aqueous carrier solution; with  
10 said peptide included in said composition in an amount of from 0.001 nanograms to 20 milligrams per milliliter of aqueous carrier solution;  
said peptide having a soraphen dissociation constant in said composition of  
from  $10^{-7}$  to  $10^{-14}$  M; and  
said composition having a pH of from 5 through 9.  
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14. A nucleic acid that encodes a peptide according to claim 1.
15. A recombinant host cell that contains a nucleic acid according to claim 14  
and expresses the encoded peptide.  
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16. A method of identifying Acetyl CoA carboxylase inhibitors or activators,  
comprising:
  - a) combining a peptide according to claim 1 and a compound to be tested for  
the ability to bind to said biotin carboxylase domain, under conditions that permit  
25 binding to said biotin carboxylase domain;
  - b) determining whether or not said compound binds to said biotin carboxylase  
domain, the presence of binding indicating said compound is or may be an Acetyl  
CoA carboxylase inhibitor or activator.
- 30 17. The method of claim 16, further comprising the steps of:
  - c) employing a compound identified as binding in step (b) in an assay to detect  
inhibition or enhancement of Acetyl CoA carboxylase activity; and

d) selecting a compound identified in step (c) that inhibits or activates Acetyl CoA carboxylase activity.

18. A method of identifying fungicides, comprising:

5 a) combining a peptide according to claim 1 and a compound to be tested for the ability to bind to said biotin carboxylase domain, under conditions that permit binding to said biotin carboxylase domain;

b) determining whether or not said compound binds to said biotin carboxylase domain, the presence of binding indicating said compound is or may be a fungicide;

10 c) employing a compound identified as binding in step (b) in an assay to detect inhibition of Acetyl CoA carboxylase activity; and

d) selecting a compound identified in step (c) that inhibits Acetyl CoA carboxylase activity.

15 19. A kit comprising:

(a) a first peptide of claim 1; in combination with

(b) a second peptide of claim 1,

wherein said first and second peptides are from different species.

20 20. A kit of claim 19, wherein said first peptide is a non-mammalian peptide and said second peptide is a mammalian peptide.

21. A kit comprising:

(a) a first peptide of claim 1; in combination with

25 (b) a second peptide comprising an ACCase having a deleted biotin binding domain, having a deleted carboxy transferase domain, and having a non-functional biotin-carboxylase domain;

wherein said first and second peptide are from the same species.

30 22. A kit of claim 19, wherein said first and second peptide are both *S. cerevisiae* peptides.